3M Innovative Properties Company Docket No.: 56495US002

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellant:	Robin E. Wright	Art Unit: 1771
Serial No.:	09/808,610	Examiner: Chang
Filed:	March 14, 2001	
Title:	METHOD OF DETACKIFYING AN EDGE FACE OF A ROLL OF TAPE USING A RADIATION CURABLE COMPOSITION	

Commissioner for Patents
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APPEAL BRIEF

Appellant submits the following brief in support of their Notice of Appeal, dated June 27, 2003, in response to the final Office Action dated April 29, 2003 and the Advisory Action dated July 24, 2003.

I. Real Party In Interest

The real party in interest is 3M Innovative Properties Company.

II. Related Appeals and Interferences

There are no related appeals or interferences pending.

III. Status of Claims

Claims 19-35 are pending. Claims 1-18 have been withdrawn.

IV. Status of Amendments

All previously submitted amendments have been entered.

V. Summary of Invention

In one aspect, the invention is directed to a roll of pressure sensitive adhesive tape that includes a first nontacky edge face, a second edge face, and a coating disposed on the first edge face, the coating including the reaction product of acrylate oligomer,

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polyetheracrylate oligomer, and, optionally monomer, photoinitiator or a combination thereof (Appellant's Specification, page 3, lines 4-7). In one embodiment, the composition comprises the reaction product of from about 10 % to about 40 % acrylate oligomer, and from about 50 % to about 90 % polyetheracrylate oligomer (*Id.* page 3, lines 7-10). In another embodiment, the composition further includes a matting agent (e.g.,silica) (*Id.* page 3, lines 23-24).

In some embodiments, the composition further includes silicone acrylate (*Id.* page 3, line 25).

In other embodiments, when a layer of the roll of tape is unwound from the roll, the coating remains adhered to the layer (*Id.* page 4, lines 1-2).

The invention also features a roll of pressure sensitive adhesive tape that includes a first nontacky edge face, second edge face opposite the first edge face, and a discontinuous coating disposed on the first edge face, the coating including the reaction product of acrylate oligomer, polyetheracrylate oligomer, and optionally monomer, photoinitiator or a combination thereof (*Id.* page 4, lines 8-12).

VI. Issues

Are claims 19-35 patentable under 35 U.S.C. § 103 over JP SHO 50-10353 (JP '353) in view of U.S. 4,151,056 issued to Park ("Park")?

VII. Grouping of Claims

The claims of each group stand or fall together, however, the groups do not stand or fall together.

Group I: Claims 19 and 21-26

Group II: Claim 20

Group III: Claim 22

Group IV: Claim 27

Group V: Claim 28

Group VI: Claim 29

Group VII: Claim 32

Group IIX: Claim 35

VIII Argument

Claims 19-35 stand rejected under 35 U.S.C. § 103 over JP SHO 50-10353 (JP '353) in view of U.S. 4,151,056 issued to Park ("Park").

The Examiner bears the initial burden of establishing a *prima facie* case of obviousness. To establish a *prima facie* case of obviousness based upon a proposed combination of references there must be a teaching, suggestion or motivation in the prior art for making the proposed combination. See M.P.E.P. 2142; Fromson v. Anitec Printing Plates, Inc., 132 F.3d 1437 (Fed. Cir. 1997); C.R. Bard, Inc. v. M3 Sys., Inc., 157 F.3d 1340, 1352, (Fed. Cir. 1998). The Examiner has failed to carry his burden. Nothing in the proposed combination of JP '353 and Park teaches, suggests or provides any motivation for modifying JP '353 in the manner proposed by the Examiner.

JP '353 discloses coating the edge face of a roll of tape with a solution that includes an organic solvent and either 1) a crosslinkable photosensitizer or 2) a crosslinkable photosensitizer, a photoactive crosslinking agent and, optionally, a vinyl-based polymer (Translation of JP '353, page 1). JP '353 discloses that only a very thin region at the surface of the pressure-sensitive adhesive on the edge face of the tape is formed into a cured layer by means of crosslinking (*Id.* page 9). JP '353 explains that "the hardened layer is chemically bonded to the pressure-sensitive adhesive polymer; thus removal of the film as a result of impact does not occur" (*Id.* page 7). JP '353 further explains that the method is performed to prevent oozing of adhesive and 'telescoping of the edge face of the tape (*Id.* page 2).

Park discloses that radiation curable coating compositions of the prior art typically contain a radiation reactive oligomer or resin, a radiation reactive diluent, a photoinitiator and optionally a radiation reactive crosslinker (Park, col. 1, lines 18-21). Park also discloses a radiation curable coating composition that includes a radiation curable oligomer or resin, an alkanedione or cycloalkanedione, and optionally a photoinitiator and a crosslinker (*Id.* col. 2, lines 30-33).

Claim 19 is directed to a roll of pressure sensitive adhesive tape that includes a first nontacky edge face, a second edge face, and a coating disposed on the first edge face, the coating including the reaction product of acrylate oligomer, polyetheracrylate oligomer, and, optionally monomer, photoinitiator or a combination thereof. It is

undisputed that JP '353 fails to teach or suggest a coating disposed on an edge face of a roll of tape, where the coating includes the reaction product of acrylate oligomer and polyetheracrylate oligomer. Instead, JP '353 discloses detackifying the pressure sensitive adhesive present at the edge face of a roll of tape by crosslinking the portion of the pressure sensitive adhesive that is exposed at the edge face of the roll of tape. Thus, in JP '353 it is the pressure sensitive adhesive of the adhesive roll of tape that is crosslinked and, when crosslinked, forms a nontacky surface. JP '353 discloses that a vinyl-based polymer can be added to the solution to increase the rate of crosslinking of the adhesive of the roll of tape.

Park does not cure the deficiencies of JP '353. As stated above, the Examiner bears the burden of establishing a *prima facie* case of obviousness. "To establish *prima facie* obviousness of a claimed invention, all of the claim limitations must be taught or suggested by the prior art." M.P.E.P. 2143.03, *citing* In re Royka, 490 F.2d 981 (CCPA 1974). Neither JP '353 nor Park teaches a composition that includes the reaction product of acrylate oligomer and polyetheracrylate oligomer. Therefore, the proposed combination of JP '353 and Park lacks a required element of claim 1. Appellant submits that this basis alone establishes that the rejection of claim 19 under 35 U.S.C. § 103 is unwarranted and cannot be sustained.

The rejection of claim 19 is further deficient in that to establish a *prima facie* case of obviousness based upon a proposed combination of references there must be some teaching, suggestion or motivation in the prior art for making the proposed combination. See M.P.E.P. 2142; Fromson v. Anitec; C.R. Bard, Inc. v. M3 Sys., Inc. Here no such teaching, suggestion or motivation exists. Nothing in Park suggests preparing a composition that includes the reaction product of acrylate oligomer and polyetheracrylate oligomer --let alone applying such a composition to the edge face of a roll of tape. Therefore the skilled artisan would have no reason to do so. A *prima facie* case of obviousness thus has not been established and the rejection of claim 19 under 35 U.S.C. § 103 over JP '353 in view of Park cannot stand and must be overruled.

The Examiner asserts multiple alternative bases in support of his rejection of claim 19 under 35 U.S.C. § 103 over JP '353 in view of Park. In the first instance, the Examiner asserts "It [(i.e., a composition that includes the reaction product of acrylate

oligomer and polyetheracrylate oligomer)] is believed to be either known art, as disclosed by Park, or an obvious optimization to one of ordinary skill in the art" (Advisory Action, page 2). Regarding the Examiner's "belief" that "it" is known in the art because "it" is disclosed by Park, we have demonstrated above that Park does not teach a composition that includes both an acrylate oligomer and polyetheracrylate oligomer. Appellant notes that, even after repeated requests, the Examiner has not identified where in Park there is a disclosure of a composition that include both an acrylate oligomer and polyetheracrylate oligomer. Instead the Examiner emphasizes that Park discloses acrylate oligomers and polyetheracrylate oligomers. The Examiner states, "Clearly, Park's teaching shows that all the elements of the instantly claimed photo-curable composition are known art" (*Id.*). Appellant does not dispute the fact that acrylate oligomers and polyetheracrylate oligomers are known. The fact that these acrylates are known is of no moment. Rather, for a composition that includes both acrylate oligomers and polyetheracrylate oligomers to be known, Park must teach the composition. Park provides no such teaching. There is nothing in the record establishing anything to the contrary. Therefore, the Examiner cannot rely on Park for a teaching that a composition that includes acrylate oligomers and polyetheracrylate oligomers was known.

Regarding the Examiner's alternative position, i.e., that a composition that includes the reaction product of acrylate oligomer and polyetheracrylate oligomer is an "obvious optimization," the law requires that a particular parameter must first be recognized in the art as a result-effective variable, i.e., a variable that achieves a recognized result, before the determination of the optimum or workable ranges of the variable can be characterized as routine experimentation. M.P.E.P. 2144.05 (II)(B) citing In re Antonie, 559 F.2d 618 (CCPA 1977). Nothing in Park establishes that the combination of acrylate oligomer and polyetheracrylate oligomer is a result effective variable that should be optimized. Moreover, nothing in Park directs the skilled artisan to select from among the various components disclosed therein so as to arrive at a composition that includes both acrylate oligomer and polyetheracrylate oligomer. Accordingly, the skilled artisan would have no reason to do so. The Examiner cites column 1, lines 24-26 of Park as support for a motivation to combine acrylate oligomer

and polyetheracrylate oligomer. The cited passage does not support the Examiner's position. The cited passage states,

> The radiation reactive diluent serves the function of reducing the viscosity of the oligomer or resin in order that the composition, in the uncured state, has a viscosity such that it can easily be applied as a film to a substrate using conventional techniques of the coating art.

(Park, col. 1, lines 24-26.) (Emphasis added.) Information about the radiation reactive diluent of Park fails to provide the requisite motivation to the skilled artisan to select acrylate oligomer and polyetheracrylate oligomer for use in a coating composition. Therefore, because Park includes no motivation or direction for selecting acrylate oligomer and polyetheracrylate oligomer for use in a composition, the skilled artisan would have no reason to do so. Accordingly, the Examiner's alternative basis also fails to establish a *prima facie* case of obviousness with respect to claim 19.

The Examiner then asserts that the generic "desire to obtain a solvent-free and rapidly photo-curable coating" provides the requisite motivation for modifying the coating solution of JP '353 with Park's photo-curable acrylate oligomers (Advisory Action, page 3). We first note that nothing in JP '353 discloses that it is desirable to obtain a solvent-free coating. To the contrary, the compositions of JP '353 all include a solvent and the solvent is necessary to place the photoactive crosslinking agent in contact with the adhesive at the edge face of the roll of tape. Therefore, the skilled artisan would have no reason to employ a solvent-free coating. Moreover, the skilled artisan would refrain from using a coating composition of Park because JP '353 discloses that applying a coating on the edge face of a roll of pressure sensitive adhesive tape will result in peeling of the coating layer and will permit oozing of the adhesive over time. In particular JP '353 discloses

> In an attempt to eliminate oozing of adhesive, a method wherein a coating solution such as a varnish or lacquer is coated onto the edge face has been proposed, but when the method is used, drying of the coating solution requires a long time and uneven coating poses a problem; furthermore, the oozing of adhesive that appears to be in-control right after coating appears again after storage at high temperature for an extended period of time as a result of migration

> of the adhesive to the edge face, and subsequent lifting of the coated layer, and when the tape is left standing for a continuing period, oozing of adhesive takes place and telescoping results.
>
> * * *
>
> [A]ll of the above-mentioned conventional methods require additional processes and extra materials, as well as added cost; furthermore, when the tape roll is left standing at high temperature, the above-mentioned oozing and telescoping continue to occur.

(Translation of JP '353, pages 3-4.)

JP '353 then explains that when the JP '353 method is used, which includes a solvent, "[O]nly a very thin region at the surface of the pressure-sensitive adhesive on the edge face of the tape is formed into a cured layer by means of crosslinking; thus, peeling of a thin paper or peeling of a protective layer does not occur" (*Id.* page 9). JP '353 thus teaches away from applying a protective coating layer to the surface of the edge face of a roll of pressure sensitive adhesive tape. The compositions of Park are polymer-based coating compositions and form a layer. Accordingly, the skilled artisan would refrain from using a coating composition of Park in the method of JP '353. For at least these additional reasons, the rejection of claim 19 under 35 U.S.C. § 103 over JP '353 in view of Park cannot be sustained and must be overruled.

Appellant submits that claims 20-35 are distinguishable over the proposed combination of JP '353 and Park for at least the same reasons set forth above in distinguishing claim 19 and, therefore, the rejection of claims 20-35 under 35 U.S.C. § 103 over JP '353 in view of Park cannot be sustained and must be overruled.

Claims 20, 22, 27, 28, 32 and 35 are further distinguishable over the proposed combination of JP '353 and Park for at least the following additional reasons. Claim 20 depends from claim 19 and further requires the composition to include the reaction product of from about 10 % to about 40 % acrylate oligomer and from about 50 % to about 90 % polyetheracrylate oligomer. Nothing in either Park or JP '353 teaches or suggests a coating composition that includes from about 10 % to about 40 % acrylate oligomer and from about 50 % to about 90 % polyetheracrylate oligomer. Thus, the proposed combination lacks a required element of claim 20. Accordingly the rejection of

claim 20 under 35 U.S.C. § 103 over JP '353 in view of Park cannot stand and must be overruled.

Claim 22 depends from claim 19 and further recites that the polyetheracrylate includes amine functionality. Neither Park nor JP '353 teaches or suggests a coating composition that includes polyetheracrylate that includes amine functionality. Thus, the proposed combination lacks a required element of claim 22. Accordingly, the rejection of claim 22 under 35 U.S.C. § 103 over JP '353 in view of Park cannot be sustained.

Claim 27 depends from claim 19 and states that composition further includes a matting agent. Nothing in either Park or JP '353 teaches or suggests a coating composition that includes a matting agent. Thus, the proposed combination lacks a required element of claim 27. Accordingly the rejection of claim 27 under 35 U.S.C. § 103 over JP '353 in view of Park cannot stand and must be overruled.

Claim 28 depends from claim 27 and states that the matting agent includes silica. Nothing in either Park or JP '353 teaches or suggests a coating composition that includes a matting agent –let alone silica. Thus, the proposed combination lacks a required element of claim 28. Accordingly the rejection of claim 28 under 35 U.S.C. § 103 over JP '353 in view of Park cannot be sustained and must be overruled.

Claim 29 depends from claim 19 and states that the composition further includes silicone acrylate. Neither Park nor JP '353 teaches or suggests a coating composition that includes silicone acrylate. Thus, the proposed combination lacks a required element of claim 29. Accordingly, the rejection of claim 29 under 35 U.S.C. § 103 over JP '353 in view of Park cannot be sustained.

Claim 32 depends from claim 19 and states that when a layer of the roll of tape is unwound from the roll, the coating remains adhered to the layer. Nothing in Park teaches or suggests that a composition that includes the reaction product of acrylate oligomer and polyetheracrylate oligomer will remain adhered to a layer of the roll of tape when the layer is unwound from the roll. Therefore, the Examiner has failed to establish a *prima facie* case of obviousness of the roll of tape of claim 32 and the rejection of claim 32 under 35 U.S.C. § 103 over JP '353 in view of Park cannot be sustained.

Claim 35 is directed to a roll of pressure sensitive adhesive tape that includes a first nontacky edge face, a second edge face opposite the first edge face, and a

discontinuous coating disposed on the first edge face, the coating including the reaction product of acrylate oligomer, polyetheracrylate oligomer, and optionally monomer, photoinitiator or a combination thereof. JP '353 does not teach a discontinuous coating disposed on the first edge face. Park does not cure the deficiencies of JP '353. Nothing in Park teaches or suggests a discontinuous coating disposed on the first edge face of a roll of pressure sensitive adhesive tape that includes a first nontacky edge face. The proposed combination of JP '353 and Park thus lacks a required element of claim 35. Accordingly the rejection of claim 35 under 35 U.S.C. § 103 over JP '353 in view of Park must be overruled.

The claims now pending in the application are in condition for allowance. Appellant respectfully requests that the Board overrule the pending rejection with instructions to issue a Notice of Allowance.

An Appendix of the Claims involved in the appeal is attached at Tab 1.

Please charge any fees owing or credit any over payments made to Deposit Account No. 501,171.

Respectfully submitted,

Date: August 27, 2003

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APPENDIX OF THE CLAIMS ON APPEAL

19. (Previously Amended) A roll of pressure sensitive adhesive tape comprising

a first nontacky edge face;

a second edge face opposite said first edge face; and

a coating disposed on said first edge face, said coating comprising the reaction product of

a) acrylate oligomer;

b) polyetheracrylate oligomer; and

c) optionally monomer, photoinitiator or a combination thereof.

20. (Original) The roll of pressure sensitive adhesive tape of claim 19, wherein said composition comprises the reaction product of

a) from about 10% to about 40% acrylate oligomer, and

b) from about 50% to about 90% polyetheracrylate oligomer.

21. (Original) The roll of pressure sensitive adhesive tape of claim 19, wherein said acrylate oligomer comprises polyurethane acrylate.

22. (Original) The roll of pressure sensitive adhesive tape of claim 19, wherein said polyetheracrylate comprises amine functionality.

23. (Original) The roll of pressure sensitive adhesive tape of claim 19, wherein said composition comprises the reaction product of said acrylate oligomer, said polyether acrylate oligomer and said monomer.

24. (Original) The roll of pressure sensitive adhesive tape of claim 23, wherein said monomer comprises an ethylenically unsaturated monomer.

25. (Original) The roll of pressure sensitive adhesive tape of claim 23, wherein said monomer is selected from the group consisting of ethylene glycol diacrylate, propylene glycol diacrylate, trimethylolpropane triacrylate, 1,6-hexamethylenedioldiacrylate, pentaerythritol diacrylate, pentaerythritol triacrylate, pentaerythritol tetraacrylate, 1,12-dodecanedioldiacrylate and mixtures thereof.

26. (Original) The roll of pressure sensitive adhesive tape of claim 23, wherein said monomer is selected from the group consisting of lauryl acrylate, stearyl acrylate, isooctyl acrylate, acrylic acid, 2-ethylhexyl acrylate, nonyl acrylate, isobornyl acrylate, ethoxyethoxyethyl acrylate, N-vinyl caprolactam and N-vinyl-2-pyrrolidone, and ethoxylated and propoxylated monomers thereof, and mixtures thereof.

27. (Original) The roll of pressure sensitive adhesive tape of claim 19, wherein said composition further comprises a matting agent.

28. (Original) The roll of pressure sensitive adhesive tape of claim 27, wherein said matting agent comprises silica.

29. (Original) The roll of pressure sensitive adhesive tape of claim 19, wherein said composition further comprises silicone acrylate.

30. (Original) The roll of pressure sensitive adhesive tape of claim 19, wherein said composition comprises the reaction product of said acrylate oligomer, said polyether acrylate oligomer and said photoinitiator.

31. (Original) The roll of pressure sensitive adhesive tape of claim 19, wherein said photoinitiator is selected from the group consisting of α-hydroxy ketones, α-amino ketones, benzildialkyl ketals, acylphosphine oxides, benzophenones and combinations thereof.

32. (Original) The roll of pressure sensitive adhesive tape of claim 19, wherein when a layer of said roll of tape is unwound from said roll, said coating remains adhered to said layer.

33. (Original) The roll of pressure sensitive adhesive tape of claim 19, wherein said coating is crosslinked.

34. (Original) The roll of pressure sensitive adhesive tape of claim 19, wherein said second edge face is nontacky, said tape further comprising a coating disposed on said second edge face, said coating comprising the reaction product of

a) acrylate oligomer;

b) polyetheracrylate oligomer; and

c) optionally monomer, photoinitiator or a combination thereof..

35. (Previously Amended) A roll of pressure sensitive adhesive tape comprising

a first nontacky edge face;

a second edge face opposite said first edge face; and

a discontinuous coating disposed on said first edge face, said coating comprising the reaction product of

a) acrylate oligomer;

b) polyetheracrylate oligomer; and

c) optionally monomer, photoinitiator or a combination thereof.